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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/667,947

Applicant(s)

DEJARNETTE ET AL.

Examiner

JOSEPH BURGESS

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 5-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 5-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Status of Claims

1. This action is in reply to an amendment filed on 07/31/2009. Claims 5-10, 18, 19, and 28 have been amended. Claims 2-4 have been cancelled. Claims 30-32 have been added. Therefore, claims 1 and 5-32 are currently pending and have been examined.

Response to Amendments

2. Applicant's amendments to claims 5-9 and 18 and cancellation of claims 3 and 4 are sufficient to overcome the 35 USC § 112, second paragraph rejections set forth in the previous office action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 18 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claim 18 recites "said multiples" in line 17 of the claim. There is insufficient antecedent basis for this limitation in the claim.
6. Claim 28 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This claim does not possess the proper claim format of preamble, transitional phrase and body. Therefore, it is unclear what the applicant is claiming. For the purposes of this

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examination, the examiner will interpret the body of the claim to begin with "a breakaway interface disposed...". All claims dependent from this claim are rejected for the same reason.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 8-11, 15-27, and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Short, et al. (US 2004/0086202 A1) in view of Sitka, et al. (US 2001/0011336 A1) in further view of Hilton (US 5,452,416 A).

9. **Claim 1:**

Short, as shown, discloses the following limitations:

- *means for receiving an image sequence from said radiological imaging machine* (see at least paragraph 0016, i.e. imaging equipment interface receives images from medical imaging equipment);
- *means for matching said anatomically associated images with corresponding individual work orders* (see at least paragraph 0021, i.e. worklist and workflow);

Short does not explicitly disclose the following limitation, but Sitka as shown does:

- *means for transmitting said matched anatomically associated image sequences and said corresponding individual work orders to said picture archive and communication system* (see at least paragraph 0004, i.e. utilizing the PACS system for archiving and retrieving images).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the digital image management system as disclosed by Sitka with the imaging workflow

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system of Short because, "...image acquisition data for different procedures can be obtained, thereby avoiding the need to sequentially obtain image data for a given procedure" (Short, paragraph 0008).

The combination of Short/Sitka does not explicitly disclose the following limitation, but Hilton as shown does:

- *means for dividing said image sequence into separate, anatomically associated image sequences* (see at least column 2, lines 40-47).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the automated medical image system of Hilton with the imaging workflow system of Short because, "...affords the user with a flexible and responsive set of functions that permit direct manipulation of the modes of image presentation and of the presented images themselves" (Hilton, column 2, lines 20-24).

10. Claim 8:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. Furthermore, Sitka discloses the limitation of *said analysis further comprises evaluating information from at least one previous analysis* (see at least paragraph 0002, i.e. PACS allows radiologists to retrieve and display previous patient studies). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the digital image management system as disclosed by Sitka with the imaging workflow system of Short because, "...image acquisition data for different procedures can be obtained, thereby avoiding the need to sequentially obtain image data for a given procedure" (Short, paragraph 0008).

The combination of Short/Sitka/Hilton does not explicitly disclose the limitation of *automated electronic image analysis*. However, Examiner asserts that providing an automatic means to replace a manual activity which accomplished the same result is not sufficient to distinguish over

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the prior art, see *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958). See MPEP 2144.04 III.

11. Claim 9:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. Furthermore, Hilton discloses the limitation of *said analysis further comprises identifying and evaluating series information* (see at least column 2, lines 16-24 i.e. automated system for storage, retrieval, and presentation of medical image sequences which allows manipulation of images). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the automated medical image system of Hilton with the imaging workflow system of Short because, "...affords the user with a flexible and responsive set of functions that permit direct manipulation of the modes of image presentation and of the presented images themselves" (Hilton, column 2, lines 20-24).

The combination of Short/Sitka/Hilton does not explicitly disclose the limitation of *automated electronic image analysis*. However, Examiner asserts that providing an automatic means to replace a manual activity which accomplished the same result is not sufficient to distinguish over the prior art, see *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958). See MPEP 2144.04 III.

12. Claim 10:

Short, as shown, discloses the following limitations:

- *assigning said one of said individual radiological images to an appropriate one of said plurality of associated studies and work orders* (see at least figures 3 and 4 and paragraphs 0020-0025).

Short does not explicitly disclose the following limitation, but Sitka as shown does:

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- *receiving said single radiological image sequence in electronic form* (see at least paragraph 0002, i.e. digital (e.g. electronic) images can be retrieved in the form of a series for a particular patient).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the digital image management system as disclosed by Sitka with the imaging workflow system of Short because, "...image acquisition data for different procedures can be obtained, thereby avoiding the need to sequentially obtain image data for a given procedure" (Short, paragraph 0008).

The combination of Short/Sitka does not explicitly disclose the following limitation, but Hilton as shown does:

- *analyzing a one of said individual radiological images within said single radiological image sequence using analysis to determine an associated anatomical region* (see at least column 2, lines 40-47).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the automated medical image system of Hilton with the imaging workflow system of Short because, "...affords the user with a flexible and responsive set of functions that permit direct manipulation of the modes of image presentation and of the presented images themselves" (Hilton, column 2, lines 20-24).

The combination of Short/Sitka/Hilton does not explicitly disclose the limitation of *automated electronic image analysis*. However, Examiner asserts that providing an automatic means to replace a manual activity which accomplished the same result is not sufficient to distinguish over the prior art, see *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958). See MPEP 2144.04 III.

13. Claim 11:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. Furthermore, Sitka discloses the limitation of *said single radiological image sequence is received in digital electronic form* (see at least paragraph 0002). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the digital image management system as disclosed by Sitka with the imaging workflow system of Short because, "...image acquisition data for different procedures can be obtained, thereby avoiding the need to sequentially obtain image data for a given procedure" (Short, paragraph 0008).

14. Claim 15:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. Furthermore, Sitka discloses the limitation of *said analyzing comprises evaluating information from previous analysis steps* (see at least paragraph 0002, i.e. PACS allows radiologists to retrieve and display previous patient studies). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the digital image management system as disclosed by Sitka with the imaging workflow system of Short because, "...image acquisition data for different procedures can be obtained, thereby avoiding the need to sequentially obtain image data for a given procedure" (Short, paragraph 0008).

15. Claim 16:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. Furthermore, Hilton discloses the limitation of *said analyzing comprises evaluating series information to distinguish multiple procedures* (see at least column 7, lines 34-67, i.e. system distinguishes two different image series of two different axial views from each other). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the automated medical image system of Hilton with the imaging workflow system of Short because, "...affords the user with a flexible and responsive set of functions that permit direct manipulation

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of the modes of image presentation and of the presented images themselves" (Hilton, column 2, lines 20-24).

16. Claim 17:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. Furthermore, Short discloses the limitation *of the step of recognizing compound work orders subsequent to said receiving step, and, responsive thereto, electing whether to perform said analyzing step* (see at least paragraphs 0021-0022, i.e. worklist content can dictate multiple exam mode which allows for acquisition of all or a subset of imaging procedures).

17. Claim 18:

Short, as shown, discloses the following limitations:

- *receiving said radiological examination orders* (see at least paragraph 0021, i.e. worklist is received from HIS system or entered directly into acquisition workstation);
- *affiliating said radiological orders using said imaging apparatus that are each assigned to a common patient into a super order* (see at least figures 3 and 4 and paragraphs 0020-0025);
- *conveying said radiological examination orders to said imaging apparatus for imaging* (see at least figures 3 and 4 and paragraphs 0020-0025);
- *delivering image sequences corresponding to said unaffiliated radiological examination orders to a storage system* (see at least figures 3 and 4 and paragraphs 0020-0025);
- *assigning said at least one individual radiological image to an appropriate one of said plurality of associated studies and work orders based upon said analyzing and determining step* (see at least figures 3 and 4 and paragraphs 0020-0025);
- *transmitting said assigned at least one individual radiological image and said appropriate one of said plurality of associated studies and work orders to said storage system* (see at least figures 3 and 4 and paragraphs 0020-0025).

Short does not explicitly disclose the following limitation, but Sitka as shown does:

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- *generating image sequences having at least one individual radiological image* (see at least paragraph 0002, i.e. when a patient is imaged by a medical modality a series of images (e.g. at least one image) is generated).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the digital image management system as disclosed by Sitka with the imaging workflow system of Short because, "...image acquisition data for different procedures can be obtained, thereby avoiding the need to sequentially obtain image data for a given procedure" (Short, paragraph 0008).

The combination of Short/Sitka does not explicitly disclose the following limitation, but Hilton as shown does:

- *analyzing said at least one individual radiological image within said image sequences corresponding to said super orders using analysis to determine associated ones of said multiples of said radiological orders* (see at least column 2, lines 40-47).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the automated medical image system of Hilton with the imaging workflow system of Short because, "...affords the user with a flexible and responsive set of functions that permit direct manipulation of the modes of image presentation and of the presented images themselves" (Hilton, column 2, lines 20-24).

The combination of Short/Sitka/Hilton does not explicitly disclose the limitation of *automated electronic image analysis*. However, Examiner asserts that providing an automatic means to replace a manual activity which accomplished the same result is not sufficient to distinguish over the prior art, see *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958). See MPEP 2144.04 III.

18. Claim 19:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above.

Furthermore, Short, as shown, discloses the following limitations:

- *distinguishing said radiological examination orders that are unaffiliated with other radiological examination orders from radiological examination orders that are affiliated with other radiological examination orders* (see at least paragraphs 0021-0022, i.e. single exam mode vs. multiple exam mode);
- *assembling affiliated radiological examination orders into a super order responsive to said distinguishing* (see at least paragraph 0022, i.e. in multiple exam mode all imaging procedures can be selected).

19. Claim 20:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above.

Furthermore, Short, as shown, discloses the following limitations:

- *said conveying step further comprising conveying said unaffiliated radiological examination orders and said super orders to said imaging apparatus for imaging responsive to said distinguishing and said assembling steps* (see at least paragraphs 0021-0022, i.e. worklist is entered in single or multiple exam mode);
- *said at least one individual radiological image is generated corresponding to said unaffiliated radiological examination orders and said super orders* (see at least paragraphs 0021-0022, i.e. images are generated in single or multiple exam modes).

20. Claim 21:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above.

Furthermore, Short, as shown, discloses the following limitations:

- *said radiological examination orders are received from said radiological information system* (see at least paragraph 0003);

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- *said image sequences and said unaffiliated radiological examination orders are delivered to said picture archive and communication system (see at least paragraph 0003);*
- *said at least one individual radiological image and said appropriate one of said plurality of associated studies and work orders are transmitted to said picture archive and communication system (see at least paragraph 0003).*

21. Claim 25:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. Furthermore, Sitka discloses the limitation of *said analyzing step further comprises analysis of information from at least one previous analysis step* (see at least paragraph 0002, i.e. PACS allows radiologists to retrieve and display previous patient studies). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the digital image management system as disclosed by Sitka with the imaging workflow system of Short because, "...image acquisition data for different procedures can be obtained, thereby avoiding the need to sequentially obtain image data for a given procedure" (Short, paragraph 0008).

22. Claim 26:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. Furthermore, Hilton discloses the limitation of *said analyzing step further comprises evaluating series information to distinguish multiple procedures* (see at least column 7, lines 34-67, i.e. system distinguishes two different image series of two different axial views from each other). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the automated medical image system of Hilton with the imaging workflow system of Short because, "...affords the user with a flexible and responsive set of functions that permit direct manipulation of the modes of image presentation and of the presented images themselves" (Hilton, column 2, lines 20-24).

23. Claim 27:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. Furthermore, Short discloses the limitation of *said step of determining an associated region further comprises determining an associated anatomical region* (see at least paragraph 0006).

24. Claim 30:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. Furthermore, Short discloses the limitation of *a means for affiliating said individual work orders using said radiological imaging machine that are each assigned to a common patient into a super order* (see at least figures 3 and 4 and paragraphs 0020-0025).

25. Claim 31:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. Furthermore, Short, as shown, discloses the following limitations:

- *a means for distinguishing said individual work orders that are unaffiliated with others of said individual work orders from individual work orders that are affiliated with other of said individual work orders* (see at least figures 3 and 4 and paragraphs 0020-0025);
- *a means for assembling affiliated individual work orders into a super order responsive to said distinguishing* (see at least figures 3 and 4 and paragraphs 0020-0025).

26. Claim 32:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. Furthermore, Short discloses the limitation of *image analysis to identify said separate, anatomically associated image sequences* (see at least figures 3 and 4 and paragraphs 0020-0025).

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The combination of Short/Sitka/Hilton does not explicitly disclose the limitation of *automated electronic image analysis*. However, Examiner asserts that providing an automatic means to replace a manual activity which accomplished the same result is not sufficient to distinguish over the prior art, see *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958). See MPEP 2144.04 III.

27. Claims 5-7 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Short, et al. (US 2004/0086202 A1) in view of Sitka, et al. (US 2001/0011336 A1) in further view of Hilton (US 5,452,416 A) in further view of Official Notice as supported by Sinha, et al. (US 2003/0228042) and Csmeli, et al. (US 2004/0125908).

28. **Claim 5:**

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. The combination of Short/Sitka/Hilton does not explicitly disclose *said automated electronic image analysis further comprises histogram analysis*. However, examiner takes **Official Notice** that it is old and well-known in the imaging arts to use histogram analysis for imaging analysis. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the imaging workflow system of Short/Sitka/Hilton with the ability to divide images by using histogram analysis because this would provide a means to archive, retrieve, and display images more efficiently. Documentation supporting **Official Notice** is provided by Sinha, et al. (US 2003/0228042), which, in at least paragraph 0035, discloses using histogram analysis on medical images.

Additionally, Examiner asserts that under applicant's own admission on page 16 of specification and page 16 of amendment, these techniques for analyzing images are known. Therefore, the combination of the imaging workflow system of Short with histogram analysis would be obvious

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under *KSR v. Teleflex* (82 USPQ 2d 1385) because prior art elements are being combined according to known methods to yield predictable results.

29. Claim 6:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. The combination of Short/Sitka/Hilton does not explicitly disclose *said automated electronic image analysis further comprises peak finding techniques*. However, examiner takes **Official Notice** that it is old and well-known in the imaging arts to segment images by using peak finding techniques. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the imaging workflow system of Short/Sitka/Hilton with the ability to divide images by using peak finding techniques because this would provide a means to archive, retrieve, and display images more efficiently. Documentation supporting **Official Notice** is provided by Sinha, et al. (US 2003/0228042), which, in at least paragraph 0035, discloses using peak finding techniques on medical images.

Additionally, Examiner asserts that under applicant's own admission on page 16 of specification and page 16 of amendment, these techniques for analyzing images are known. Therefore, the combination of the imaging workflow system of Short with peak finding techniques would be obvious under *KSR v. Teleflex* (82 USPQ 2d 1385) because prior art elements are being combined according to known methods to yield predictable results.

30. Claim 7:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. The combination of Short/Sitka/Hilton does not explicitly disclose *said automated electronic image analysis further comprises moments of order analysis*. However, examiner takes **Official Notice** that it is old and well-known in the imaging arts to segment images by using moments of order analysis. It would have been obvious to one of ordinary skill in the art at the time of the

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invention to modify the imaging workflow system of Short/Sitka/Hilton with the ability to divide images by using moments of order analysis because this would provide a means to archive, retrieve, and display images more efficiently. Documentation supporting **Official Notice** is provided by Cesmelli, et al. (US 2004/0125908), which, in at least paragraph 0009, discloses using moments of order analysis on medical images.

Additionally, Examiner asserts that under applicant's own admission on page 16 of specification and page 16 of amendment, these techniques for analyzing images are known. Therefore, the combination of the imaging workflow system of Short with moments of order analysis would be obvious under *KSR v. Teleflex* (82 USPQ 2d 1385) because prior art elements are being combined according to known methods to yield predictable results.

31. Claim 12:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. The combination of Short/Sitka/Hilton does not explicitly disclose *said analyzing comprises histogram analysis*. However, examiner takes **Official Notice** that it is old and well-known in the imaging arts to analyze images by using histogram analysis. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the imaging workflow system of Short/Sitka/Hilton with the ability to analyze images by using histogram analysis because this would provide a means to archive, retrieve, and display images more efficiently. Documentation supporting **Official Notice** is provided by Sinha, et al. (US 2003/0228042), which, in at least paragraph 0035, discloses using histogram analysis on medical images.

Additionally, Examiner asserts that under applicant's own admission on page 16 of specification and page 16 of amendment, these techniques for analyzing images are known. Therefore, the combination of the imaging workflow system of Short with histogram analysis would be obvious

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under *KSR v. Teleflex* (82 USPQ 2nd 1385) because prior art elements are being combined according to known methods to yield predictable results.

32. Claim 13:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. The combination of Short/Sitka/Hilton does not explicitly disclose *said analyzing comprises moments of order analysis*. However, examiner takes **Official Notice** that it is old and well-known in the imaging arts to analyze images by using moments of order analysis. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the imaging workflow system of Short/Sitka/Hilton with the ability to analyze images by using moments of order analysis because this would provide a means to archive, retrieve, and display images more efficiently. Documentation supporting **Official Notice** is provided by Csemler, et al. (US 2004/0125908), which, in at least paragraph 0009, discloses using moments of order analysis on medical images.

Additionally, Examiner asserts that under applicant's own admission on page 16 of specification and page 16 of amendment, these techniques for analyzing images are known. Therefore, the combination of the imaging workflow system of Short with moments of order analysis would be obvious under *KSR v. Teleflex* (82 USPQ 2nd 1385) because prior art elements are being combined according to known methods to yield predictable results.

33. Claim 14:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. The combination of Short/Sitka/Hilton does not explicitly disclose *said analyzing comprises peak finding techniques*. However, examiner takes **Official Notice** that it is old and well-known in the imaging arts to analyze images by using peak finding techniques. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the imaging workflow system

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of Short/Sitka/Hilton with the ability to analyze images by using peak finding techniques because this would provide a means to archive, retrieve, and display images more efficiently. Documentation supporting **Official Notice** is provided by Sinha, et al. (US 2003/0228042), which, in at least paragraph 0035, discloses using peak finding techniques on medical images.

Additionally, Examiner asserts that under applicant's own admission on page 16 of specification and page 16 of amendment, these techniques for analyzing images are known. Therefore, the combination of the imaging workflow system of Short with peak finding techniques would be obvious under *KSR v. Teleflex* (82 USPQ 2d 1385) because prior art elements are being combined according to known methods to yield predictable results.

34. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Short, et al. (US 2004/0086202 A1) in view of Hilton (US 5,452,416 A).

35. **Claim 28:**

Short, as shown, discloses the following limitations:

- *said breakaway interface affiliating multiple studies into a single super work order to thereby facilitate conventional use of the medical imaging equipment for multi-anatomical or multi-procedural studies for generating a series of anatomical images under a single work order (see at least figures 3 and 4 and paragraphs 0020-0025),*
- *said breakaway interface further analyzing said multi-anatomical or multi-procedural studies produced under said single super work order (see at least figures 3 and 4 and paragraphs 0020-0025),*
- *responsive to said analyzing producing respective individual work orders which are matched to corresponding anatomical images, and which are inputted into the radiological information system for management control, tracking, accounting and/or billing purposes (see at least figures 3 and 4 and paragraphs 0020-0025),*

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The combination of Short/Sitka does not explicitly disclose the following limitation, but Hilton as shown does:

- *a breakaway interface disposed between the radiological information system* (see at least figure 1),

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the automated medical image system of Hilton with the imaging workflow system of Short because, "...affords the user with a flexible and responsive set of functions that permit direct manipulation of the modes of image presentation and of the presented images themselves" (Hilton, column 2, lines 20-24).

The combination of Short/Sitka/Hilton does not explicitly disclose the limitation of *electronically analyzing images*. However, Examiner asserts that providing an automatic means to replace a manual activity which accomplished the same result is not sufficient to distinguish over the prior art, see *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958). See MPEP 2144.04 III.

36. Claim 29:

The combination of Short/Sitka/Hilton discloses the limitations as shown in the rejections above. Furthermore, Short discloses the limitation of *a picture archive and communication system (PACS)* (see at least paragraph 0003) *and means for transmitting individual work orders and the anatomical images into the PACS* (see at least paragraph 0021).

Allowable Subject Matter

37. Claims 22-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The applicant discloses using automated histogram analysis, moments of order analysis, and peak finding techniques to analyze radiological images within an image sequence to determine associated radiological orders. These limitations in conjunction with other limitations in the claims were not shown by, would not have been obvious over, nor would have been fairly suggested by the prior art of record.

Response to Arguments

38. Applicant's arguments regarding the 35 USC § 101 rejections to claims 1-29 are sufficient to overcome the rejections set forth in the previous office action and, therefore this rejection is withdrawn.
39. Applicant's arguments the 35 USC § 103 rejections have been fully considered but they are not persuasive. However, in an effort to advance prosecution, Examiner has provided a response to applicant's arguments. Applicant argues:
- i. Short/Sitka/Hilton does not teach the concept of dividing an image series into a smaller series.
 - ii. The practice of using histogram analysis, peak finding techniques, and moments of order analysis is not known in the radiology art.
 - iii. Affidavits provided with the amendments support the novelty of the present invention.
40. With regards to applicant's argument that Short/Sitka/Hilton does not teach the concept of dividing an image series into smaller series, Examiner respectfully disagrees. Short, in at least paragraphs 0020-0025, discloses separating an image set into smaller sets or individual images. Additionally, Hilton, in at least column 8, lines 7-23, discloses picking individual images from a

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series. Therefore, as is claimed, the combination of these references provides for dividing an image series into smaller series.

41. In response to applicant's traversal of Examiner's Official Notice and subsequent argument that practice of using histogram analysis, peak finding techniques, and moments of order analysis is not known in the radiology art, Examiner respectfully disagrees. As has been noted in the rejections above, two references relating to the radiological imaging arts show that these types of analysis are known. Sinha, et al. (US 2003/0228042), in at least paragraph 0035, discloses using histogram analysis and peak finding techniques on medical images, whereas Cesmeli, et al. (US 2004/0125908), in at least paragraph 0009, discloses using moments of order analysis on medical images. Therefore, as is claimed, these types of analysis are known in the radiology arts.
42. With regards to applicant's argument that the affidavits provided with the amendments support the novelty of the present invention, Examiner respectfully disagrees. The affidavits address the invention broadly, but provide no nexus with regard to the claim limitations. Therefore, the Examiner has not given them any substantial weight with regard to nonobviousness of the claimed invention.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH

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shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry of a general nature or relating to the status of this application or concerning this communication or earlier communications from the Examiner should be directed to **JOSEPH BURGESS** whose telephone number is **(571)270-5547**. The Examiner can normally be reached on Monday-Friday, 9:00am-5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, **CHRISTOPHER GILLIGAN** can be reached at **(571)272-6770**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://portal.uspto.gov/external/portal/pair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **(866)217-9197** (toll-free).

Any response to this action should be mailed to:

**Commissioner of Patents and Trademarks
Washington, D.C. 20231**

or faxed to **571-273-8300**. Hand delivered responses should be brought to the **United States Patent and Trademark Office Customer Service Window**:

Randolph Building

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**401 Dulany Street
Alexandria, VA 22314.**

JOSEPH BURGESS

9/25/2009

Examiner

Art Unit 3626

/C. Luke Gilligan/

Supervisory Patent Examiner, Art Unit 3626